

What is claimed is:

1. A method of producing an optimized structure design incorporating vibration confinement, comprising:

providing structural specifications for the structure;

providing vibration confinement specifications for the structure;

selecting a confinement region; and

optimizing the design of the structure incorporating the confinement region in response to the structural specifications and confinement specifications.
2. The method of claim 1, and further comprising selecting optimization parameters.
3. The method of claim 2, and further comprising prioritizing the optimization parameters.
4. The method of claim 1, and further comprising outputting design parameters.
5. The method of claim 1, wherein providing vibration confinement specifications comprises specifying an apparatus for inducing confinement.
6. A method of producing an optimized structure design incorporating vibration confinement, comprising:

providing structural specifications for the structure;

providing vibration confinement specifications for the structure;

prioritizing optimization parameters;

selecting a confinement region;

optimizing the design of the structure incorporating the confinement region in response to the structural specifications and confinement specifications; and outputting design parameters.

7. The method of claim 6, and further comprising verifying that the output design parameters meet operational specifications.
8. The method of claim 6, and further comprising optimizing the structure designed without vibration confinement to produce a set of non-confined modes and providing the set of non-confined modes as an input for optimizing the structure design incorporating vibration confinement.
9. The method of claim 6, and further comprising selecting a preferred set of output parameters from a plurality of sets of output parameters, and wherein outputting design parameters includes outputting the plurality of sets of output parameters.
10. The method of claim 6, and further comprising weighting the optimization parameters.
11. The method of claim 6, wherein selecting a confinement region comprises selecting the confinement region according to the structural specifications, the vibration confinement specifications, and the prioritized optimization parameters.
12. The method of claim 6, wherein outputting design parameters includes at least one of identifying a method for inducing confinement and specifying a design of a confinement device.

13. The method of claim 6, wherein providing vibration confinement specifications comprises using the outputted design parameters.
14. The method of claim 6, wherein providing vibration confinement specifications comprises providing vibration confinement specifications for reducing vibration, isolating vibration, amplifying vibration, or modifying vibration-related characteristics of the structure.
15. The method of claim 6, wherein providing vibration confinement specifications comprises specifying an apparatus for inducing confinement.
16. The method of claim 15, wherein specifying an apparatus for inducing confinement comprises specifying an initial design of the apparatus for inducing confinement.
17. A method of producing an optimized structure design incorporating vibration confinement, comprising:
 - providing structural specifications for the structure;
 - providing vibration confinement specifications for the structure, wherein providing vibration confinement specifications comprises providing vibration confinement specifications for reducing vibration, isolating vibration, amplifying vibration, or modifying vibration-related characteristics of the structure;
 - prioritizing optimization parameters;

selecting a confinement region according to the structural specifications, the vibration confinement specifications, and the prioritized optimization parameters;

optimizing the design of the structure incorporating the confinement region in response to the structural specifications and confinement specifications;

outputting design parameters; and

verifying that the output design parameters meet operational specifications.

18. The method of claim 17, wherein providing vibration confinement specifications comprises specifying an initial design of an apparatus for inducing confinement.